PATERSON GROUP

remedial action plan

Re: **Remedial Action Plan and Cost Estimate**
Proposed Residential Development
84 and 100 Gloucester Street – Ottawa, Ontario

To: Claridge Homes
Mr. Vincent Denomme – vincent.denomme@claridgehomes.com
Ms. Nina Davidson – nina.davidson@claridgehomes.com

Date: August 11, 2022

File: PE5571-RAP.01

Further to your request, Paterson Group (Paterson) has prepared an environmental remedial action plan for the property addressed 84 and 100 Gloucester Street in the City of Ottawa (the subject site).

The following remedial action plan was made based on the analytical test results contained in the report entitled, "Phase II – Environmental Site Assessment, 84 and 100 Gloucester Street, Ottawa, Ontario", prepared by Paterson and dated June 28, 2022.

Environmental Site Conditions

Historical Background

Paterson completed a Phase I – Environmental Site Assessment (Phase I ESA) for the subject site in February 2022. Based on the findings of the Phase I ESA, several areas of potential environmental concern (APECs) were identified as a result of the following historical on-site or off-site potentially contaminating activities (PCAs):

- A former printers, located on-site on the eastern portion of the subject site.
- A former printers, located on-site on the northwestern portion of the subject site.
- Potential for fill material of unknown quality, located across the subject site outside of the existing building footprint.
- The application of de-icing salt across the subject site, for safety purposes during winter conditions.
- A possible former dry cleaners, located off-site approximately 20 m to the west of the subject site.

The Phase II ESA was completed during the interim of March 31 through April 5, 2022, to assess the aforementioned APECs, and consisted of drilling seven boreholes, three of which were completed with groundwater monitoring well installations. The findings of the Phase II ESA are summarized below.

Impacted Soil

In general, the soil profile encountered in the boreholes consisted of a surficial layer of asphaltic concrete, underlain by fill material over top of native brown silty clay and/or glacial till.

Soil samples obtained from the boreholes were screened using visual and olfactory observations as well as soil vapour measurement device. Based on the screening results, 14 soil samples were submitted for laboratory analysis of volatile organic compounds (VOCs), metals (including mercury and hexavalent chromium), polycyclic aromatic hydrocarbons (PAHs), electrical conductivity (EC), and sodium adsorption ratio (SAR).

Based on the analytical results, some metal and/or PAH parameter concentrations were identified in soil samples BH4-2-SS3 and BH7-22-AU1 in excess of the selected MECP Table 3 Residential Soil Standards. Given the non-homogenous nature of the fill material, pockets of impacted fill are expected to be encountered across the subject site.

Additional exceedances of cobalt and vanadium were also detected in the deeper native silty clay soils at BH4-22 and BH7-22, however, these elevated levels are considered to be naturally occurring and do not present a contaminant issue to the subject site.

Potential for Salt Impacted Soil

Elevated EC and/or SAR levels were detected in soil samples BH3-22-SS2 and BH4-22-SS3. This is expected given that the subject site is largely used for vehicle parking and is adjacent to Gloucester Street. In accordance with Section 49.1 of O. Reg. 153/04, EC and SAR concentrations on the subject site are deemed *not to be* exceeded for the purpose of Part XV.1 of the Act.

While these parameters are not considered to be contaminants of concern to the subject site, they will need to be considered when determining a reuse site for excess soil in accordance with O. Reg. 406/19 – On-Site and Excess Soil Management.

Groundwater

Three groundwater samples were recovered from the installed monitoring wells on April 22 and May 16, 2022 and submitted for laboratory analysis of petroleum hydrocarbons (PHCs F_1-F_4), VOCs, and metals. Based on the analytical results, the groundwater beneath the subject site complies with the selected MECP Table 3 Non-Potable Groundwater Standards.

Remedial Action Plan Summary

The suggested remedial action plan consists of a generic approach, where the excavation and subsequent disposal of contaminated soil at an approved waste disposal facility would be undertaken during the redevelopment of the subject site. The following assumptions were used to determine a realistic cost estimate:

- The areas marked out on the enclosed Drawing PE5571-4 – Analytical Testing Plan – Soil, have or are expected to have soil impacted with metals to depths of approximately 2.0 m below ground surface.

The proposed development will require a Record of Site Condition (RSC) to be filed with the Ontario Ministry of the Environment, Conservation and Parks (MECP) due to the proposed change in land use and to comply with the requirements of the City of Ottawa's Brownfields Property Tax and/or Rehabilitation Grant Programs. To meet the conditions of an RSC, the suggested remedial action plan is as follows:

- The existing building at 100 Gloucester Street will be demolished as part of site redevelopment.

- Existing groundwater monitoring wells are required to be decommissioned by a licenced well driller in accordance with O. Reg. 903. It is recommended that the monitoring wells be retested, prior to their decommissioning, to confirm the groundwater quality.

- A remediation program using a full-depth generic approach will be implemented. This will involve the excavation and removal of all impacted soil from the subject site. Prior to its off-site disposal, a leachate analysis of a representative sample of contaminated soil must be completed in accordance with O. Reg. 347/55.

- It is our understanding that the majority of the on-site soils will be removed during site redevelopment activities, and that the excavation will extend to the bedrock. As part of redevelopment, soil to be removed from the subject site will be assessed for possible reuse under the excess soil regulation (O. Reg. 406/19); any soil that cannot

be beneficially reused in accordance with O. Reg. 406/19 will require disposal at an approved waste disposal facility.

- ❑ Excess soil to be beneficially reused can be hauled to an appropriate reuse site (as determined by a Qualified Person) and is required to be handled in accordance with O. Reg. 406/19 – On-Ste and Excess Soil Management.

- ❑ Paterson personnel will be present on-site at the time of site excavation to aid in the segregation of clean soil from impacted soil and to monitor the removal of any identified contaminated soils.

- ❑ During the excavation of contaminated soils, a screening procedure will be implemented using visual and olfactory observations as well as a portable soil vapour analyser. Field observations will be used in combination with the collection and analysis of verification samples to determine the remedial excavation limits.

- ❑ Any impacted soil identified in excess of the selected MECP Table 3 Residential Coarse-Grained Soil Standards for Non-Potable Groundwater Conditions will be placed into trucks and hauled to an approved waste disposal facility.

- ❑ Following the successful removal of contaminated soil from the subject site, a remediation report will be prepared and an RSC will be submitted to the MECP for acknowledgement.

Quantities and Cost Estimate

Based on the available information, the preliminary estimated remedial quantities consist of the following:

- ❑ Disposal of contaminated soil at an approved landfill site……..…..……5,000 mt
- ❑ Treatment of impacted groundwater (if required)……50,000 L

It is our understanding that Claridge Homes is coordinating the contractor remedial costs to be included in the Brownfields Grant Application.

It is recommended that the Excess Soil Planning Requirements (including the excess soil testing program) required by Ontario Regulation 406/19: On-Site and Excess Soil Management, be completed at least six months prior to tender, and if required, revised remedial quantities based on the additional required testing results be established prior to construction tender.

We trust that this information satisfies your requirements,

Best Regards,

Paterson Group Inc.

Nick Sullivan, B.Sc.

Karyn Munch, P.Eng., QP_{ESA}

Report Distribution

- ❑ Claridge Homes
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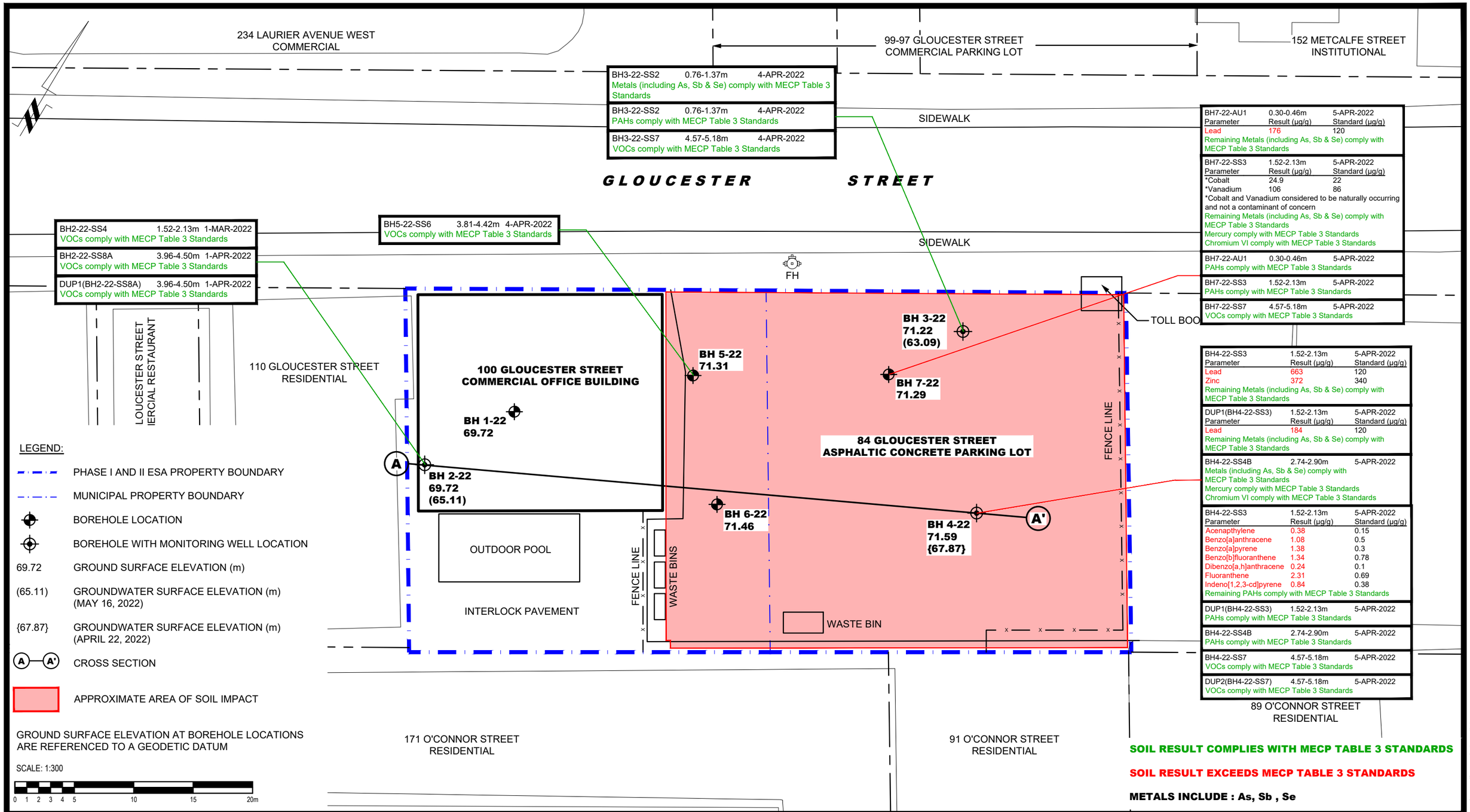
Attachments

- ❑ Drawing PE5571-6 – Analytical Testing Plan – Soil (Approximate Area of Impacted Soil)



PATERSON GROUP
SOLUTION ORIENTED ENGINEERING

NO.	REVISIONS	DATE	INITIAL

CLARIDGE HOMES

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
84 GLOUCESTER STREET

OTTAWA, ONTARIO

Title: ANALYTICAL TESTING PLAN - SOIL (APPROXIMATE AREA OF IMPACT)

Scale: 1:300	Date: 08/2022
Drawn by: YA	Report No.: PE5571-2
Checked by: JC	Dwg. No.: PE5571-6
Approved by: KM	Revision No.:

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